Amendments to the Specification:

Please replace the paragraph beginning on line 24 of page 14 of the application with the following paragraph:

FIGS. 26a~~a~~A and **26b~~b~~B** (see Appendix). Example of a diffractive structure consisting of two gratings in two separate layers, with physical parameters shown in **FIG. 26A~~(a)~~** and corresponding chromosome represented in **FIG. 26B~~(b)~~**. The chromosome is a candidate solution in the optimization process. A set of chromosomes forms a population. The total population of chromosomes at a given iteration is called a generation. In this case, the parameters to be optimized are the grating period Λ, the thicknesses d_1, d_2, refractive indices, $n_{L,1}$, $n_{H,1}$, $n_{L,2}$, $n_{H,2}$, and relative positions of the high-refractive index materials within a grating period, $x_{L,1}$, $x_{H,1}$, $x_{L,2}$, and $x_{H,2}$.

Please replace the paragraph beginning on line 1 of page 58 of the application with the following paragraph:

The program starts by randomly generating a population of chromosomes in the specified encoding and range of values for each variable. As an example, **FIG. 26b~~b~~B** shows the chromosome of a double-layer grating with its genes corresponding to the physical parameters of the structure illustrated in **FIG. 26a~~a~~A** [65,71]. The chromosome has $(5N_L + 1)$ genes where N_L is the number of layers of the diffractive structure. Each layer is assumed to be a grating with the same period Λ, but with different refractive indices n_H and n_L, thicknesses d, and coordinates (relative to the grating period) of the high-refractive index region of each grating X_L and X_H. To select the refractive indices in each layer, the algorithm generates integer random numbers, which represent pointers to refractive index values in the corresponding input file.

Homogeneous layers are generated either when the same refractive index is selected for both regions of the binary grating, or when the fill factor defined as $(X_H - X_L)$ is smaller or greater than the values specified by the user in the input file f_{min} and f_{max}. For $(X_H - X_L) < f_{min}$ the layer is considered as homogeneous with the refractive index n_L, while for $(X_H - X_L) > f_{max}$ the layer is homogeneous with refractive index n_H. Different values of X_L in different layers generate phase-shifted layers. The number of layers N_L is fixed and provided by the user. However the program can analyze structures with fewer layers whenever it selects a layer thickness that is smaller than the minimum layer thickness (from the input file). In this case, the thickness is set to zero and the number of layers decreases by one.

Please replace the Abstract of the application, which begins on page 69, with the replacement Abstract attached on a separate sheet of paper to the appendix of this response.

Amendments to the Drawings:

Please replace current FIG. 22 with replacement FIG. 22 provided in the appendix to this response.

Please replace current FIGS. 26a and 26b with replacement FIGS. 26A and 26B provided in the appendix to this response.